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| 10/049,463 | 08/02/2002 | Jean-Francois Croizy | ATOCM 252 | 3875 |

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MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201

EXAMINER

SACKEY, EBENEZER O

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1626

DATE MAILED: 04/17/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/049,463

Applicant(s)
CROIZY ET AL.

Examiner
EBENEZER SACKEY

Art Unit
1626



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Aug 2, 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claims 1-10 are pending.

Receipt of the Preliminary amendment and translation filed on 08/02/02 is acknowledged and has been entered into the file.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 U.S.C. § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recites the phrase "characterized by the fact that the". The phrase is idiomatic and indefinite. It appears to be a literal translation into English from a foreign document. It is suggested that claim 1 be written as follows "A process for the production of methyl ethyl ketone cyanohydrin of formula: wherein methyl ethyl ketone reacts with hydrocyanic acid in the presence of a diethylamine catalyst." Such would appear to obviate the rejection.

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Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over G.B. 416,007 and Chan (U.S. Patent Number 4,517,132) each taken alone.

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Applicants claim a process for producing methyl ethyl ketone cyanohydrin of the formula depicted in claim 1 by reacting methyl ethyl ketone and hydrocyanic acid in the presence of a diethylamine catalyst.

Determination of the scope and content of the prior art (M.P.E.P., §2141.01)

G.B. 416,007 discloses the preparation of acetone cyanohydrin by the reaction of an aliphatic ketone with hydrocyanic acid in the presence of a base such as an amine. See the entire patent, especially page 1, page 4 and claim 1.

Chan discloses a process for preparing cyanohydrin wherein a carbonyl compound such as methyl ethyl ketone is reacted with and alkali metal cyanide in the presence of hydrochloric acid. See column 1, lines 14-59 and Examples II and III, column 4, lines 12-59.

Ascertainment of the difference between the prior art and the claims (M.P.E.P., §2141.02)

The instant process differs from the British Patent, i.e., 416,007 in that methyl ethyl ketone is reacted with hydrocyanic acid in the presence of a base, wherein acetone (an analogous reactant of the starting material) is

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reacted with hydrocyanic acid in the presence of a base. See page 1 of the '007' patent.

The instant process also differs from Chan in that diethylamine and hydrocyanic acid are required in the process, wherein sodium cyanide and hydrochloric acid are disclosed by Chan. However, the use of sodium cyanide by Chan is prima facie obvious because in solution, the cyanide ion from the sodium cyanide has similar properties as that of the hydrogen cyanide required of the claimed invention. The required base and aliphatic ketones are known materials for preparing cyanohydrins as disclosed by G.B. 416,007. It is noted in the specification (Examples 1 and 2) that at the end of the reactions, the crude cyanohydrin is stabilized by the addition of sulfuric acid to neutralized the basic catalyst. Thus, the use of the hydrochloric acid by Chan is identified as an exemplary embodiment. G.B. 416,007 also discloses that the recovery of the cyanohydrin from the mixture is brought about by acidifying the mixture with a mineral acid. See page 3, lines 43-52. Hence, the use of a mineral acid is prima facie obvious in view of its properties as disclosed.

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Claims 2 and 3 are drawn to a specific rate at which the base is introduced into the reaction system. Such a rate is not disclosed in any of the references. However, such a determinant is well within the purview of the skilled artisan. Claim 4 requires the reaction to occur under atmospheric pressure. This limitation is disclosed by Chan, see column 3, lines 18-19. Claims 5 and 6 require temperature range of -10 to 30°C, this limitation is also disclosed by Chan, see column 3, line 17. Claims 7 and 8 are drawn to reaction being conducted at a pH of between 7 and 9. None of the references discloses reaction pH, however, G.B. '007' discloses that the basic catalyst is neutralized and thus, the disclosure embraces the required pH. See page 3, lines 120.

Finding of prima facie obviousness---rational and motivation (M.P.E.P.. §2142-2143)

Accordingly, the claimed process is no more than a selective combination of G.B. '007' and U.S. '132' teachings done in an obvious manner to one of ordinary skill, since each step of the process appears to be relatively complete in itself and there is no indication of an interaction between steps of such a type that could lead the skilled artisan to doubt that

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a substitution of alternative steps known to the art could be made. See *In re Mostovych*, 144 USPQ 38 (1964). It would have been obvious to one of ordinary skill in the art to prepare a cyanohydrin compound of the depicted formula by reacting a methyl ethyl ketone with hydrocyanic acid in the presence of an amine catalyst because each of those reactants (amine catalyst and aliphatic ketones) has been shown to be useful for preparing similar cyanohydrin compounds absent a showing of unexpected results or properties especially since only the expected compound is obtained. As such, the worker in the art would be motivated to optimize the process parameters such as temperature, mole ratios of reactants (as is done in instant claims 5, 9) to improve yield and selectivity. Moreover, the use of analogous reactants in a well known process is prima facie obvious absent a showing of unexpected results. The instantly claimed process would therefore have been suggested to one of ordinary skill absent a showing of unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to E. Sackey whose telephone

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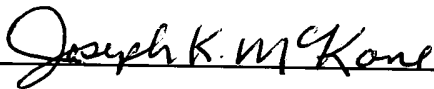
number is (703) 305-6889. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane, can be reached on (703) 308-4537. The fax phone number for this Group is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1235.

EOS

April 11, 2003



Joseph K. McKane

Supervisory Patent Examiner

Art Unit 1626, Group 1600

Technology Center 1